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10/037,864	01/02/2002	Monte C. Magill	OUTT-018/00US	4804

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EXAMINER

DICUS, TAMRA

ART UNIT

PAPER NUMBER

1774

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/037,864

Applicant(s)

MONTE C. MAGILL ET AL.

Examiner

Tamra L. Dicus

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 and 47-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 and 47-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

The Examiner acknowledges cancellation of claims 25-46.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 4-15 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,532,039 to Payne et al.

3. Payne teaches thermal barriers comprising opposing surfaces defining a chamber. A connecting structure (a barrier zone) is attached to each of the opposing surfaces and is positioned within the chamber, subdividing the chamber into a plurality of cells (regions). A temperature stabilizing material is disposed in each cell, disposed in the cells throughout the thermal barrier. Thermal barriers 50 or 60 (first and second barriers) are shown in Figures 5-8. Figures 5-7 show interior portions within thermal barriers enclosing the base material within respective compartments. The barriers are of polyethylene (col. 5, lines 35-40, meeting claim 13). Interconnecting walls 54 of barrier 50 may be of a rectangular, hexagonal, or other regular shape, and are referred to herein as "honey-comb" structures. See col. 6, lines 1-15. Also interconnecting sheet 35 defines cells (porous) between thermal barrier sheets 33 and 34. See col. 5, lines 34-40 (equivalent to base material of a sheet or film-claim 2). The base material also shows porosity in Figures 4 and 8 and prevents the phase change material from migrating to other regions. The temperature stabilizing material comprises a phase change material, such as a

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paraffinic hydrocarbon, hydrated salt, plastic crystal or glycol (instant claim 10). See col. 4, lines 15-28. The temperature stabilizing material may be microencapsulated to prevent leakage and to facilitate the usage of different phase change materials within a single barrier (see col. 2, lines 30-35). Col. 3, lines 63-68 teaches two or more different temperature stabilizing (phase change) materials can be used to address particular temperature ranges and such materials can be mixed together, microencapsulated or segregated into different zones, layers or chambers within a thermal barrier. Several different compatible phase change materials may be utilized within the barrier to broaden the temperature ranges at which the thermal barrier is effective (instant claim 11). See patented claims 1-8.

Barrier 10 is comprised of a first sheet 12 and a second sheet 14 positioned in a closely spaced apart orientation. Sheets 12 and 14 are selected for various desired characteristics such as flexibility or permeability, and are constructed from plastic, foil, film, paper or foam (col. 4, line 63-col. 5, line 4), meeting claims 2, 4, 5, and 12.

Regarding instant claim 7, the separate bonding areas and surfaces are shown in Figure 8.

Regarding instant claim 8, "is formed by applying thermal energy" is a process limitation. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. Patentability of an article depends on the article itself and not the method used to produce it (see MPEP 2113). Furthermore, the invention defined by a product-by-process invention is a product NOT a process. *In re Bridgeford*, 357 F. 2d 679. It is the patentability of the product claimed and NOT of the recited process steps which must be established. *In re Brown*, 459 F. 2d 531.

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Regarding instant claim 9, the first and second barrier layers are bonded to the base material, see Figures 4 & 8.

Regarding claims 14-15, Payne teaches in any of the embodiments, one or more of the sheets may have a reflective material applied to one or both sides, or may be constructed of a reflective material to further reduce radiant heat loss or absorption. See col. 7, lines 45-50.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,532,039 to Payne et al. in view of USPN 5,900,320 to Ogawa et al.

Payne is relied upon above. Payne teaches a base material of foam, but does not teach the specific material such as polyurethane. Ogawa teaches foamed plastic material for use as insulating material. The foamed plastic is used for lightweight structural material (col. 1, lines 20-25) and may be of polyurethane or polyethylene (col. 1, lines 45-51). It would have been obvious to one of ordinary skill in the art to modify the thermal barriers of Payne to define regions of polyurethane foam in place of polyethylene because Ogawa teaches foam can be made of polyurethane or polyethylene at col. 1, lines 20-51. The two polymers are shown to be functional equivalents.

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6. Claims 16 (amended)-24, 47 and 49-50 (new) are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,532,039 to Payne et al. in view of USPN 4,139,024 to Adorjan. Payne teaches thermal barriers comprising opposing surfaces defining a chamber. A connecting structure (a barrier zone) is attached to each of the opposing surfaces and is positioned within the chamber, subdividing the chamber into a plurality of cells (regions). A temperature stabilizing material is disposed in each cell, disposed in the cells throughout the thermal barrier. Thermal barriers 50 or 60 (first and second barriers) are shown in Figures 5-8. Figures 5-7 show interior portions within thermal barriers enclosing the base material within respective compartments. Figure 8 also shows depressions 64 or as shown in Figure 6, barriers 54 are bonded to regions of base material (thereby creating barrier zones) as per instant claim 48 and make a rectilinear pattern as instant claim 49 requires. Interconnecting walls 54 of barrier 50 may be of a rectangular, hexagonal, or other regular shape, and are referred to herein as "honey-comb" structures (instant claim 49). See Figure 4 also showing a seal and col. 2, lines 51-53 teaching a method of making the thermal barrier where the sheets are heat and pressure sealed to enclose the materials and cells, including the base material within. Payne shows a "sealing pattern" is formed in Figure 7 showing a sealing pattern of bubbles where phase change material is enclosed within the bubble wrap where the first barrier layer containing interior portions is bonded via adhesive with the second barrier layer containing interior portions, when sealed as Payne describes, a plurality of compartments enclosing the base material is also provided. See also this explanation at col. 6, lines 18-33.

7. The barriers are of polyethylene (col. 5, lines 35-40, meeting claim 13). See col. 6, lines 1-15. Also interconnecting sheet 35 defines cells (porous) between thermal barrier sheets 33 and

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34. See col. 5, lines 34-40 (equivalent to base material of a sheet or film-claims 17-18). The base material also shows porosity in Figures 4 and 8 and prevents the phase change material from migrating to other regions (instant claim 18). The temperature stabilizing material comprises a phase change material, such as a paraffinic hydrocarbon, hydrated salt, plastic crystal or glycol. The temperature stabilizing material may be microencapsulated to prevent leakage and to facilitate the usage of different phase change materials within a single barrier (see col. 2, lines 30-35). Col. 3, lines 63-68 teaches two or more different temperature stabilizing (phase change) materials can be used to address particular temperature ranges and such materials can be mixed together, microencapsulated or segregated into different zones, layers or chambers within a thermal barrier. Several different compatible phase change materials may be utilized within the barrier to broaden the temperature ranges at which the thermal barrier is effective (meeting claims 19-20). See patented claims 1-8.

Barrier 10 is comprised of a first sheet 12 and a second sheet 14 positioned in a closely spaced apart orientation. Sheets 12 and 14 are selected for various desired characteristics such as flexibility or permeability, and are constructed from plastic, foil, film, paper or foam (col. 4, line 63-col. 5, line 4), meeting claim 21.

Regarding claims 23-24, Payne teaches in any of the embodiments, one or more of the sheets may have a reflective material applied to one or both sides, or may be constructed of a reflective material to further reduce radiant heat loss or absorption. See col. 7, lines 45-50.

8. Further regarding instant claim 16 and claim 17, While Payne does not disclose a plurality of base material positioned between a first and second barrier layer, Payne does use

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layered thermal barriers for base materials at col. 5, lines 30-33 and Figure 5. Adorjan teaches a thermal insulation structure. The outer surface of the inner wall (barrier) is covered with a reflective film. A cavity (regions) contains polyurethane foam (see col. 1, lines 29-35). Adorjan teaches plurality of polyurethane foam multilayers may be between barrier layers as shown in Figure 2. It would have been obvious to one of ordinary skill in the art to modify the thermal barrier of Payne to further include a plurality of base layers because Adorjan teaches cavities contain polyurethane foams of open or closed cell (porous or non porous) to provide heat insulation as taught by Adorjan at col. 1, line 65-col. 2, line 15.

9. Claim 47 (new) is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,532,039 to Payne et al. in view of USPN 4,139,024 to Adorjan and further in view of USPN 6,090,729 to Jonas.

10. Payne in view of Adorjan is relied upon above. Payne does not state a barrier zone comprises a non-porous material. Jonas teaches a sheet material for core support. The non-porous sheet bonds to honeycomb structures (a barrier zone construction) and includes a nonporous epoxy-thermoplastic resin (non-porous material). See col. 1, lines 35-46 and col. 2, lines 34-45. It would have been obvious to one of ordinary skill in the art to modify the thermal barrier of Payne to further include a non-porous material because Jonas teaches nonporous epoxy-thermoplastic resin material within honeycomb structures for the purpose of forming impermeable barriers, which is for the same reason applicant is involved.

Response to Arguments

11. Applicant's arguments filed 01-12-04 have been fully considered but they are not persuasive. Applicant argues the Examiner did not show a teaching of independent instant claim 1. The Applicant has not persuasively argued. Figures 4, 6, 7, and 8 explicitly show a plurality of regions and a barrier zone separating the regions of the base material. See Figure 6 for example, showing 54 within 53. Applicant argues instant claim 2 does not show regions of base material comprising a porous material. The Examiner, as previously set forth, showed this limitation at col. 4, line 63-col. 5, line 4, teaching the same material applicant claims, foam which is porous. Applicant further argues new claims 47-49 are allowable because the barrier zone is bonded to the regions of the base material. The Examiner still uses Payne to show this limitation. Applicant argues independent claim 16, stating Payne does not show non-encapsulated phase change material. However, Payne states that the material could be encapsulated, but the material does not have to be, and is not taught being encapsulated. Applicant further argues a plurality of base materials between a first and second barrier layer is not provided by Payne. Payne does show multilayering first and second barrier materials in Figure 5; however, Adorjan was used to teach the additional plurality of base materials. Applicant argues interior portions and a sealing pattern to enclose the base materials is not taught. However, this limitation is shown, as set forth above, in Figure 7. Applicant argues Adorjan does not teach a non-encapsulated phase change material, however, Payne was used to teach this limitation.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is 571-272-1519. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 7, 2004

[tld]

CYNTHIA H. KELLY
SUPERVISOR, PATENT EXAMINER
TECHNOLOGY CENTER 1700

A handwritten signature in black ink, appearing to read 'Cynthia H. Kelly', is written over the typed name and title.